

**Amendments to the Claims:**

The following listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) An electronic device, ~~characterized by~~ comprising:  
three or more electrodes; and  
a transporting layer constituted by a carbon nanotube structure formed into a network structure by a plurality of carbon nanotubes and cross-linked sites on the carbon nanotubes, wherein the cross-linked sites connect the carbon nanotubes with each other by chemical bonding between the different carbon nanotubes, in which a carrier is transported ~~in accordance with~~ when a voltage is applied to the electrodes;  
wherein the electrodes comprise at least a source electrode, a drain electrode, and a gate electrode to constitute a field effect transistor structure.
2. (Canceled)
3. (Currently Amended) An electronic device according to claim 1, ~~characterized in that~~ wherein the field effect transistor structure comprises a MOS-FET structure.
4. (Currently Amended) An electronic device according to claim 1, ~~characterized in that~~ wherein the field effect transistor structure comprises a MES-FET structure.
5. (Currently Amended) An electronic device according to claim 1, ~~characterized in that~~ wherein, in the carbon nanotube structure layer, the carbon nanotubes connected by cross-linked sites of the carbon nanotubes comprise ~~mainly~~ more single-wall carbon nanotubes than multi-wall carbon nanotubes.
6. (Currently Amended) An electronic device according to claim 1, ~~characterized in that~~ wherein, in the carbon nanotube structure layer, the carbon nanotubes connected by cross-linked sites of the carbon nanotubes comprise ~~mainly~~ more multi-wall carbon nanotubes than single-wall carbon nanotubes.

7. (Currently Amended) An electronic device according to claim 1, ~~characterized in that~~wherein chemical bonds constituting the cross-linked sites comprise at least one chemical bond selected from the group consisting of  $(-\text{COO}(\text{CH}_2)_2\text{OCO}-)$ ,  $-\text{COOCH}_2\text{CHOHCH}_2\text{OCO}-$ ,  $-\text{COOCH}_2\text{CH}(\text{OCO}-)\text{CH}_2\text{OH}$ ,  $-\text{COOCH}_2\text{CH}(\text{OCO}-)\text{CH}_2\text{OCO}-$ , and  $-\text{COO}-\text{C}_6\text{H}_4-\text{COO}-$ .

8. (Currently Amended) An electronic device according to claim 1, ~~characterized in that~~wherein the chemical bonds constituting the cross-linked sites comprise at least one chemical bond selected from the group consisting of  $-\text{COOCO}-$ ,  $-\text{O}-$ ,  $-\text{NHCO}-$ ,  $-\text{COO}-$ ,  $-\text{NCH}-$ ,  $-\text{NH}-$ ,  $-\text{S}-$ ,  $-\text{O}-$ ,  $-\text{NHCOO}-$ , and  $-\text{S-S}-$ .

9. (Currently Amended) An electronic device according to claim 1, ~~characterized in that~~wherein the carbon nanotube structure is obtained by using a solution containing a plurality of carbon nanotubes to which functional groups are bonded and forming a cross-linked site through chemical bonding of the functional groups bonded to the carbon nanotubes.

10. (Currently Amended) An electronic device according to claim 9, ~~characterized in that~~wherein that the carbon nanotube structure is obtained by curing a solution containing carbon nanotubes having functional groups and a cross-linking agent that prompts a cross-linking reaction with the functional groups, prompting a cross-linking reaction between each of the functional groups bonded to the different carbon nanotubes and the cross-linking agent, and forming a cross-linked site.

11. (Currently Amended) An electronic device according to claim 10, ~~characterized in that~~wherein the cross-linking agent comprises a non-self-polymerizable cross-linking agent.

12. (Currently Amended) An electronic device according to claim 10, ~~characterized in that~~wherein the functional groups comprise at least one group selected from the group consisting of  $-\text{OH}$ ,  $-\text{COOH}$ ,  $-\text{COOR}$  (where R represents a substituted or unsubstituted hydrocarbon group),  $-\text{COX}$  (where X represents a halogen atom),  $-\text{NH}_2$ , and  $-\text{NCO}$ , and the

cross-linking agent comprises a cross-linking agent which may prompt a cross-linking reaction with the selected functional groups.

13. (Currently Amended) An electronic device according to claim 10, ~~characterized in that~~wherein the cross-linking agent comprises at least one cross-linking agent selected from the group consisting of a polyol, a polyamine, a polycarboxylic acid, a polycarboxylate, a polycarboxylic acid halide, a polycarbodiimide, a polyisocyanate, and hydroquinone, wherein at least one functional group of the functional groups prompt a cross-linking reaction with the selected cross-linking agent.

14. (Currently Amended) An electronic device according to claim 10, ~~characterized in that~~wherein:

the functional groups comprise at least one group selected from the group consisting of -OH, -COOH, -COOR (where R represents a substituted or unsubstituted hydrocarbon group), -COX (where X represents a halogen atom), -NH<sub>2</sub>, and -NCO;

the cross-linking agent comprises at least one cross-linking agent selected from the group consisting of a polyol, a polyamine, a polycarboxylic acid, a polycarboxylate, a polycarboxylic acid halide, a polycarbodiimide, a polyisocyanate, and hydroquinone; and

the functional groups and the cross-linking agent are respectively selected in such a manner that combination of the functional groups and the cross-linking agent may prompt a cross-linking reaction with each other.

15. (Currently Amended) An electronic device according to claim 9, ~~characterized in that~~wherein the cross-linked sites are constituted by chemical bonding of the functional groups.

16. (Currently Amended) An electronic device according to claim 15, ~~characterized in that~~wherein reactions for causing the chemical bonding comprise at least one selected from

the group consisting of dehydration condensation, a substitution reaction, an addition reaction, and an oxidation reaction.

17. (Currently Amended) An electronic device according to claim 1, ~~characterized in that~~wherein the transporting layer is obtained by patterning the carbon nanotube structure into a shape corresponding to a formation area of the transporting layer.

18. (Currently Amended) An electronic device according to claim 1, ~~characterized by~~further comprising a flexible substrate on which the electrode and the transporting layer are formed.

19. (Currently Amended) An integrated circuit, ~~characterized by~~ comprising: a substrate; and a plurality of electronic devices each of which is described in claim 1, the electrodes being integrated on the substrate.

20. (Withdrawn-Currently Amended) A method of manufacturing an electronic device that includes, on a base body, three or more electrodes and a transporting layer in which a carrier is transported in accordance with a voltage applied to the electrodes, ~~characterized by~~ comprising:

a supplying step of supplying the base body with a solution containing a plurality of carbon nanotubes to which functional groups are bonded; and

a cross-linking step of chemically bonding the functional groups, constructing a network structure in which the carbon nanotubes mutually cross-link with each other, and forming a carbon nanotube structure ~~used~~ as the transporting layer

wherein the electrodes comprise at least a source electrode, a drain electrode, and a gate electrode to constitute a field effect transistor structure.

21. (Withdrawn-Currently Amended) A method of manufacturing an electronic device according to claim 20, ~~wherein~~characterized in that the supplying step comprises an

applying step of applying the solution onto the base body, and the carbon nanotube structure is of a film shape.

22. (Withdrawn-Currently Amended) A method of manufacturing an electronic device according to claim 20, ~~wherein characterized in that~~ the carbon nanotubes comprise mainly single-wall carbon nanotubes.

23. (Withdrawn-Currently Amended) A method of manufacturing an electronic device according to claim 20, ~~wherein characterized in that~~ the carbon nanotubes comprise mainly multi-wall carbon nanotubes.

24. (Withdrawn-Currently Amended) A method of manufacturing an electronic device according to claim 20, ~~wherein characterized in that~~ the solution contains a cross-linking agent for cross-linking the functional groups.

25. (Withdrawn-Currently Amended) A method of manufacturing an electronic device according to claim 24, ~~wherein characterized in that~~ the cross-linking agent comprises a non-self-polymerizable cross-linking agent.

26. (Withdrawn-Currently Amended) A method of manufacturing an electronic device according to claim 24, ~~wherein characterized in that~~ the functional groups comprise at least one group selected from the group consisting of -OH, -COOH, -COOR (where R represents a substituted or unsubstituted hydrocarbon group), -COX (where X represents a halogen atom), -NH<sub>2</sub>, and -NCO, and the cross-linking agent comprises a cross-linking agent which may prompt a cross-linking reaction with the selected functional groups.

27. (Withdrawn-Currently Amended) A method of manufacturing an electronic device according to claim 24, ~~wherein characterized in that~~ the cross-linking agent comprises at least one cross-linking agent selected from the group consisting of a polyol, a polyamine, a polycarboxylic acid, a polycarboxylate, a polycarboxylic acid halide, a polycarbodiimide, a

polyisocyanate, and hydroquinone, and the functional groups comprise functional groups which may prompt a cross-linking reaction with the selected cross-linking agent.

28. (Withdrawn-Currently Amended) A method of manufacturing an electronic device according to claim 24, ~~wherein characterized in that:~~

the functional groups comprise at least one group selected from the group consisting of -OH, -COOH, -COOR (where R represents a substituted or unsubstituted hydrocarbon group), -COX (where X represents a halogen atom), -NH<sub>2</sub>, and -NCO;

the cross-linking agent comprises at least one cross-linking agent selected from the group consisting of a polyol, a polyamine, a polycarboxylic acid, a polycarboxylate, a polycarboxylic acid halide, a polycarbodiimide, a polyisocyanate, and hydroquinone; and

the functional groups and the cross-linking agent are respectively selected in such a manner that combination of the functional groups and the cross-linking agent may prompt a cross-linking reaction with each other.

29. (Withdrawn-Currently Amended) A method of manufacturing an electronic device according to claim 24, ~~wherein characterized in that~~ the functional groups are comprise -COOR (where R represents a substituted or unsubstituted hydrocarbon group).

30. (Withdrawn-Currently Amended) A method of manufacturing an electronic device according to claim 29, ~~wherein characterized in that~~ the cross-linking agent comprises a polyol.

31. (Withdrawn-Currently Amended) A method of manufacturing an electronic device according to claim 30, ~~wherein characterized in that~~ the cross-linking agent comprises glycerin and/or ethylene glycol.

32. (Withdrawn-Currently Amended) A method of manufacturing an electronic device according to claim 20, ~~wherein characterized in that~~ a reaction for causing the chemical bonding comprises a reaction for chemically bonding the functional groups.

33. (Withdrawn-Currently Amended) A method of manufacturing an electronic device according to claim 32, ~~wherein characterized in that~~ the solution contains an additive for causing the chemical bonding of the functional groups.

34. (Withdrawn-Currently Amended) A method of manufacturing an electronic device according to claim 33, ~~wherein characterized in that~~ the reaction comprises dehydration condensation and the additive comprises a condensation agent.

35. (Withdrawn-Currently Amended) A method of manufacturing an electronic device according to claim 34, ~~wherein characterized in that~~ the functional groups comprise at least one selected from -COOR (where R represents a substituted or unsubstituted hydrocarbon group), -COOH, -COX (where X represents a halogen atom), -OH, -CHO, and -NH<sub>2</sub>.

36. (Withdrawn-Currently Amended) A method of manufacturing an electronic device according to claim 35, ~~wherein characterized in that~~ the functional groups comprise -COOH.

37. (Withdrawn-Currently Amended) A method of manufacturing an electronic device according to claim 34, ~~wherein characterized in that~~ the condensation agent comprises at least one compound selected from the group consisting of sulfuric acid, N-ethyl-N'-(3-dimethylaminopropyl)carbodiimide, and dicyclohexyl carbodiimide.

38. (Withdrawn-Currently Amended) A method of manufacturing an electronic device according to claim 33, ~~wherein characterized in that~~ the reaction comprises a substitution reaction and the additive comprises a base.

39. (Withdrawn-Currently Amended) A method of manufacturing an electronic device according to claim 38, ~~wherein characterized in that~~ the functional groups comprise at least one group selected from the group consisting of -NH<sub>2</sub>, -X (where X represents a halogen atom), -SH, -OH, -OSO<sub>2</sub>CH<sub>3</sub>, and -OSO<sub>2</sub>(C<sub>6</sub>H<sub>4</sub>)CH<sub>3</sub>.

40. (Withdrawn-Currently Amended) A method of manufacturing an electronic device according to claim 38, ~~wherein characterized in that~~ the base comprises at least one compound selected from the group consisting of sodium hydroxide, potassium hydroxide, pyridine, and sodium ethoxide.

41. (Withdrawn-Currently Amended) A method of manufacturing an electronic device according to claim 32, ~~wherein characterized in that~~ the reaction comprises an addition reaction.

42. (Withdrawn-Currently Amended) A method of manufacturing an electronic device according to claim 41, ~~wherein characterized in that~~ the functional groups comprise -OH and/or -NCO.

43. (Withdrawn-Currently Amended) A method of manufacturing an electronic device according to claim 32, ~~wherein characterized in that~~ the reaction comprises an oxidation reaction.

44. (Withdrawn-Currently Amended) A method of manufacturing an electronic device according to claim 43, ~~wherein characterized in that~~ the functional groups comprise -SH.

45. (Withdrawn-Currently Amended) A method of manufacturing an electronic device according to claim 43, ~~wherein characterized in that~~ the solution contains an oxidation reaction accelerator.

46. (Withdrawn-Currently Amended) A method of manufacturing an electronic device according to claim 45, ~~wherein characterized in that~~ the oxidation reaction accelerator comprises iodine.

47. (Withdrawn-Currently Amended) A method of manufacturing an electronic device according to claim 20, ~~wherein characterized in that~~ the solution further contains a solvent.



48. (Withdrawn-Currently Amended) A method of manufacturing an electronic device according to claim 24, ~~wherein characterized in that~~ the cross-linking agent serves also as a solvent.

49. (Withdrawn-Currently Amended) A method of manufacturing an electronic device according to claim 20, ~~characterized by~~ further comprising a patterning step of patterning the carbon nanotube structure layer into a shape corresponding to the transporting layer.

50. (Withdrawn-Currently Amended) A method of manufacturing an electronic device according to claim 49, ~~wherein characterized in that~~ the patterning step comprises a step involving: subjecting a carbon nanotube structure layer in a region having a pattern other than a pattern corresponding to the transporting layer on a surface of the base body to dry etching to remove the carbon nanotube structure layer in the region; and patterning the carbon nanotube structure layer into the pattern corresponding to the transporting layer.

51. (Withdrawn-Currently Amended) A method of manufacturing an electronic device according to claim 49, ~~wherein characterized in that~~ the patterning step comprises:

a resist layer forming step of forming a resist layer on the carbon nanotube structure layer in the region having the pattern corresponding to the transporting layer on the surface of the base body; and

a removing step of removing a carbon nanotube structure layer exposed in a region other than the region by subjecting a surface of the base body on which the carbon nanotube structure layer and the resist layer are laminated to dry etching.

52. (Withdrawn-Currently Amended) A method of manufacturing an electronic device according to claim 51, ~~wherein characterized in that~~, in the removing step, the surface of the base body on which the carbon nanotube structure layer and the resist layer are laminated is irradiated with a radical of an oxygen molecule.

53. (Withdrawn-Currently Amended) A method of manufacturing an electronic device according to claim 52, ~~wherein characterized in that~~ an oxygen radical is generated by irradiating an oxygen molecule with ultraviolet light, the oxygen radical being used as the radical with which the surface of the base body on which the carbon nanotube structure layer and the resist layer are laminated is irradiated.

54. (Withdrawn-Currently Amended) A method of manufacturing an electronic device according to claim 51, ~~wherein characterized in that~~ the patterning step further includes, subsequent to the removing step, a resist layer peeling-off step of peeling off the resist layer formed in the resist layer forming step.

55. (Withdrawn-Currently Amended) A method of manufacturing an electronic device according to claim 54, ~~wherein characterized in that~~ the resist layer comprises a resin layer.

56. (Withdrawn-Currently Amended) A method of manufacturing an electronic device according to claim 50, ~~wherein characterized in that~~ the patterning step comprises a step involving: selectively irradiating the carbon nanotube structure layer in the region having a pattern other than the pattern corresponding to the transporting layer on the surface of the base body with an ion of a gas molecule in a form of an ion beam to remove the carbon nanotube structure layer in the region; and patterning the carbon nanotube structure layer into the pattern corresponding to the transporting layer.